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What is claimed is

1. A method for generating a quality oriented significance
    map for assessing the quality of an image or video,
5   comprising the following steps:

    extracting features of the image or video;

    determining a perceptual quality requirement of at least
10 one extracted feature; and

    integrating the extracted features and the perceptual
    quality requirement of the at least one extracted
    feature to form an array of significance level values,
15 thereby generating the quality oriented significance
    map.

2. The method according to claim 1, wherein the features of
    the image or video are extracted using visual feature-
20 based information and knowledge-based information.

3. The method according to claim 2, wherein an absolute
    motion and a relative motion are determined, and are
    used to determine a quality level value of the pixel or
25 region of the image or video, wherein the determined
    quality level value is a perceptual quality requirement
    used for generating the quality oriented significance
    map.

30 4. The method according to claim 2, wherein the extracted
    features and the perceptual quality requirement of the
    at least one extracted feature are integrated to form

the array of significance level values using a non-
linear mapping function.

5. The method according to claim 4, wherein coupling
effects as a result of the integration of the extracted
features are used when forming the array of the
significance level values.

6. The method according to claim 5, wherein the quality
oriented significance map is obtained using the
following equation:

$$m_{s,i,j,t} = \sum_{n}^{N} f_{s,i,j,t}^{n} - \sum_{k} c^{Lk} \cdot g_1\left(f_{s,i,j,t}^{L}, f_{s,i,j,t}^{k}\right)$$

wherein
$m_{s,i,j,t}$ is an element of the quality oriented significance
map at scale s, position (i,j) and time t;
$f_{s,i,j,t}^{n}$ is the nth extracted feature,
c^{Lk} is a coupling factor which denotes the coupling
effects of combining $f_{s,i,j,t}^{L}$ and $f_{s,i,j,t}^{k}$;
n is the index extracted feature;
k is another index of extracted feature such that $1 < k$
$< N$ and $k \neq L$;
N is the total number of extracted features; and
L is the maximum value of $f_{s,i,j,t}^{n}$ denoted as

$L = arg\ max(f_{s,i,j,t}^{n})$.

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7. The method according to claim 6, wherein the nonlinear
    coupling mapping function is defined as:

$$g_1(x, y) = \min(x, y)$$

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8. The method according to claim 4, wherein the integration
    of the extracted features is performed by determining a
    weight to each of the extracted features, adding the
    weighted extracted features, and applying the nonlinear
10 mapping function to the accumulated features, thereby
    forming the array of the visual significance level
    values.

9. The method according to claim 8, wherein the quality
15 oriented significance map is obtained using the
    following equation:

$$m_{s,i,j,t} = g_2\left(w_1 f_{s,i,j,t}^1 + w_2 f_{s,i,j,t}^2 + \ldots + w_n f_{s,i,j,t}^n\right)$$

20 wherein
    $m_{s,i,j,t}$ is an element of the quality oriented significance
    map at scale s, position (i,j) and time t;
    $f_{s,i,j,t}^n$ is the extracted feature;
    n is the nth extracted feature; and
25 g_2 is the nonlinear mapping function.

10. The method according to claim 9, wherein the nonlinear
    mapping function is defined as:

30 $$g_2(x) = \sqrt[q]{x + C}$$

wherein

α is a parameter for giving a nonlinear property, and

C is a constant.

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11. The method according to claim 1, the generated quality
     oriented significance map is further processed in a post
     processing step to enhance the quality of the generated
     quality oriented significance map.

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12. The method according to claim 11, wherein the post
     processing step is performed using a Gaussian smoothing
     technique.

15 13. A device for generating a quality oriented significance
         map for assessing the quality of an image or video,
         comprising:

         an feature extraction unit for extracting features of
20   the image or video;

         a determination unit for determining a perceptual
         quality requirement of at least one extracted feature;
         and

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         an integration unit for integrating the extracted
         features and the perceptual quality requirement of the
         at least one extracted feature to form an array of
         significance level values, thereby generating the
30   quality oriented significance map.

14. A computer readable medium, having a program recorded thereon, wherein the program is to make the computer execute a procedure for generating a quality oriented significance map for assessing the quality of an image or video, comprising the following steps:

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extracting features of the image or video;

determining a perceptual quality requirement of at least one extracted feature; and

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integrating the extracted features and the perceptual quality requirement of the at least one extracted feature to form an array of significance level values, thereby generating the quality oriented significance map.

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15. A computer program element which is to make the computer execute a procedure for generating a quality oriented significance map for assessing the quality of an image or video, comprising the following steps:

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extracting features of the image or video;

determining a perceptual quality requirement of at least one extracted feature; and

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integrating the extracted features and the perceptual quality requirement of the at least one extracted feature to form an array of significance level values, thereby generating the quality oriented significance map.

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